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Applicants:	Hans Hannu, *et al.*	§	Group Art Unit:	2442
Application No	10/551,082	§	Examiner:	Benoit, Esther
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Attorney Docket No: P18175-US1
Customer No.: 27045

For: State-Mediated Data Signaling Used for Compression in Telecommunication Services

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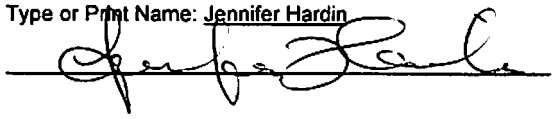

APPEAL BRIEF SUBMITTED UNDER 35 U.S.C. §134

This Appeal Brief is submitted to appeal the decision of the Primary Examiner, set forth in Final Official Action dated dated July 20, 2009, and the Advisory Action dated November 4, 2009, finally rejecting claims 27-53.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §41.20(b)(2) that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1379.

Real Party in Interest

The real party in interest, by assignment, is: Telefonaktiebolaget LM Ericsson (publ)
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Stockholm, Sweden

Related Appeals and Interferences

None.

Status of Claims

Claims 1-26 were previously cancelled and are not appealed. Claims 27-53 remain pending, each of which are finally rejected and form the basis for this appeal. Claims 39-53 stand rejected under 35 U.S.C. §101, and claims 27-53 stand rejected under 35 U.S.C. §102(a).

Status of Amendments

The claims set out in the Claims Appendix include all entered amendments. No amendment has been filed subsequent to the final rejection.

Summary of Claimed Subject Matter

Claim Element	Specification Reference
27. A data signaling method for message-based communication between a first communications unit and a second communications unit, said method comprising the steps of:	Figure 7 Page 22, line 6, *et seq.*
initiating said message-based inter-unit communication by providing, in said first communications unit, a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said first communications unit and said second communications unit;	Page 22, line 10, *et seq.*
generating a copy of said state;	Page 22, line 16, *et seq.*
transmitting said state copy and a first identifier of said state copy from said first communications unit to said second communications unit;	Page 22, line 18, *et seq.*
generating a second identifier based on said received state copy;	Page 22, line 26, *et seq.*
comparing said received first identifier and said generated second identifier;	Page 22, line 29, *et seq.*
storing said state copy in said second communications unit; and	Page 22, line 30, *et seq.*
processing, if said second identifier	Page 23, line 7, *et seq.*

corresponds to said first identifier, a communications message of said multiple communications messages using said state or said state copy by modulating a size of said communications message based on at least a portion of said communications unit-associated data.	

Claim Element	Specification Reference
39. A communications unit adapted for message-based communication with an external communication unit, said communications unit comprising:	Figures 3, 4 and 7
means for receiving a copy of a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said communications unit and said external communications unit;	Page 12, line 28, *et seq.*
means for receiving a first identifier of said state copy;	Page 22, line 18, *et seq.*
means for generating a second identifier based on said received state copy;	Page 22, line 26, *et seq.*
means for comparing said received first identifier and said generated second identifier;	Page 22, line 29, *et seq.*
means for storing said state copy; and	Page 22, line 30, *et seq.*
means, responsive to said comparing means, for processing a communications message of said multiple communications messages using said stored state copy if said second identifier corresponds to said first identifier, said processing means being configured for modulating a size of said communications message based on at least a portion of said communications unit-associated data in said state copy.	Page 23, line 7, *et seq.*

Claim Element	Specification Reference
49. A communications unit adapted for message-based communication with an external communication unit, said communications unit comprising:	Page 22, line 6, *et seq.*
means for generating a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said communications unit	Page 22, line 10, *et seq.*

and said external communications unit;	
means for storing said state;	
means for generating a copy of said state;	Page 22, line 16, *et seq.*
means for providing said state copy for storage in said external communications unit and for providing a first identifier of said state copy to said external communications unit;	Page 22, line 18, *et seq.*
means for receiving an acknowledge identifier from said external communications, said acknowledge identifier being transmitted in response to a correspondence between said first identifier and a second identifier, said second identifier being generated by said external communications unit based on said state copy; and	Page 21, line 6, *et seq.*
means, responsive to said receiving means, for processing a communications message of said multiple communications messages using said stored state if said second identifier corresponds to said first identifier as determined by reception of said acknowledge identifier, said processing means being configured for modulating a size of said communications message based on at least a portion of said communications unit-associated data in said state.	Page 21, line 6, *et seq.*

The specification references listed above are provided solely to comply with the USPTO's current regulations regarding appeal briefs. The use of such references should not be interpreted to limit the scope of the claims to such references, nor to limit the scope of the claimed invention in any manner.

Grounds of Rejection to be Reviewed on Appeal

1.) Whether claims 39-53 are, under 35 U.S.C. §101, directed to non-statutory subject matter; and,

2.) Whether claims 27-53 are anticipated, under 35 US.C. §102(a), by RFC 3321.

Arguments

1.) Claims 39-53 Are, Under 35 U.S.C. §101, Directed To Statutory Subject Matter

The Examiner has rejected claims 39-53 on the asserted basis that they are directed to non-statutory subject matter because they are written in "'means-plus-function' language." Claims 39-53 are directed to a "communications unit adapted for message-based communication with an external communication unit" and are drafted in "means-plus-function" format. The "means-plus-function" format is explicitly authorized by statute. Specifically, 35 U.S.C. §112, sixth paragraph, provides that:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. (emphasis added)

Thus, claims to a combination of elements that are expressed in a "means-plus-function" format are to be "construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

The Examiner has maintained the rejection under §101 by asserting that "[t]he 'means for' found in claims 39-53 are directed to software, which is not patentable subject matter," and that "the applicants have not proven [that] the 'means for' performing these steps 'is not' software." (See: Advisory Action dated November 4, 2009) Claims 39-53 are directed to a "communications unit adapted for message-based communication with an external communication unit" (emphasis added), wherein the "means for" performing certain functions are disclosed in the specification with respect to Figure 3, which illustrates various hardware elements suitable for performing the claimed functions. Therefore, claims 39-53 are in compliance with both 35 U.S.C. §112, paragraph 6, and §101.

2.) Claims 27-53 Are Not Anticipated, Under 35 US.C. §102(a), by RFC 3321

The Examiner has maintained the rejection of claims 27-53 as being anticipated by RFC 3321. It is important to remember that anticipation requires that the disclosure of a single piece of prior art reveals every element, or limitation, of a claimed invention.

Furthermore, the limitation that must be met by an anticipatory reference are those set forth in each statement of function in a claims limitation, and such a limitation cannot be met by an element in a reference that performs a different function, even though it may be part of a device embodying the same general overall concept. RFC 3321 fails to disclose each and every limitation of claims 27-53 and, therefore, those claims are not anticipated thereby.

RFC 3321 describes how to implement certain mechanisms in Signaling Compression ("SigComp"), RFC 3320, which can significantly improve the compression efficiency compared to using simple per-message compression. SigComp uses a Universal Decompressor Virtual Machine (UDVM) for decompression, and the mechanisms described in RFC 3321 are possible to implement using the UDVM instructions defined in RFC 3320. RFC3321 refers to extended operations of SigComp and, in particular, to specific types of compression: dynamic compression and shared compression (section 1). Generally, dynamic compression is compression relative messages sent prior to a current compressed message, whereas shared compression is compression relative messages received prior to a current compressed message (section 2, paragraphs 4 and 6 on page 3).

Starting with dynamic compression, when the compressor in the first endpoint compresses a message (m1), it uses information in a stored SigComp state (s0). (See: Fig. 2 and section 4.1). A new state (s1) is then generated based on the message (m1) and the previous state (s0). The compressed message (m1) is then forwarded to the second endpoint, where a corresponding state generation is performed using the received message (m1) and the state copy (s0) of the second endpoint (Fig. 2). Thus, in this dynamic compression, the state information is updated based on new messages. For this compression type to be implemented, however, **both endpoints must first have access to an *initial* state** (s0) based on which new states (s1, s2, s3) can be generated. RFC 3321 is ***silent*** about how this initial ***state*** will be ***exchanged*** between the endpoints, enabling the endpoints to determine that the correct state has been successfully exchanged.

In shared expression, the so-called shared state is simply an uncompressed application message generated by one of the endpoints (section 2). A first endpoint saves

the uncompressed version of the message (provided from its associated application) in a compartment dedicated to a second endpoint in its state memory (section 5.2). The message is then compressed and communicated to the second endpoint. This second endpoint calculates the shared state ID for this state (*i.e.*, for the received message). The calculated shared state ID is forwarded to the state handler in the second endpoint using the returned SigComp parameters (section 5.2, step (3)). The state handler compares this shared state ID (ID1) with a value (ID2) it has calculated for the current received and decompressed application message (section 5.2, step (4)). Thus, the **second endpoint determines both** the **ID1 and ID2**. If the identifiers match, the second endpoint will use this shared state (uncompressed received message) for compressing the **next** application message sent to the first endpoint (section 5.2, step (4)). This **shared state**, however, will **not** be saved in the second endpoint. Instead, it is forwarded up to the application in the second endpoint once it has been used in the single message compression. Thus, the received shared state is only used in the second endpoint for compression of the **single immediately following** message to be transmitted to the first endpoint.

There are, thus, several important differences between the Applicants' claimed invention and shared compression and states described in RFC 3321. Firstly, a shared state is an uncompressed application message and is only used for compressing **a single** following application **message** (and of course for decompressing this following application message in the other endpoint). Furthermore, although the shared state is stored in the first endpoint that created it (for the purpose of being used when decompressing the next compressed message to be received from the second endpoint), **RFC 3321 does not disclose that the shared state is also stored in the second endpoint**. On the contrary, once it has been used in a message compression in the second endpoint, the shared state is provided to the application in the second endpoint for further processing, as any other application message (remembering that the shared state is an uncompressed application message). As a consequence, a shared state is only applicable (once) in **one-way** message communication. **This is described in the present application on page 26, lines 5 to 20.**

As is clearly stated in RFC 3321 (section 5.2, steps (3) and (4)), the **second endpoint calculates** both the shared state ID, **ID1**, and the value, **ID2**, for the current

received and decompressed message (which is identical to the shared state). As a consequence, the second endpoint will basically determine both identifiers based on the same received data. Such a solution has, though, a major disadvantage. Imagine a scenario in which the application of the first endpoint generates an application message that also will be used as a shared state. A copy of this message is stored in the first endpoint. The message is then compressed and transmitted to the second endpoint where it will be decompressed. The second endpoint calculates the two identifiers and compares them. If the content of the message has (unintentionally) been modified or changed (*e.g.*, in the compression of the message in the first endpoint or during the transmission of the message), however, the two endpoints will have access to somewhat different shared states. Since the two identifiers are determined by the second endpoint based on the received data, the identifiers will still match even though the uncompressed message (shared state) that the second endpoint has access to differs from the shared state copy stored in the first endpoint. When the second endpoint then subsequently compresses a message intended to the first endpoint using its version of the uncompressed message (shared state), it is very likely that the decompression of the same message will fail or result in an erroneous decompressed message in the first endpoint since the shared state copy stored in the first endpoint differs from the version used in the compression by the second endpoint. This is in clear contrast to the Applicants' claimed invention, wherein **states** are **applicable to multiple** (*i.e.* at least two) messages communicated between the endpoints and includes endpoint-associated data. In addition, **both endpoints store** their respective copy of the **state**. More importantly, the first endpoint generates the first identifier based on the state in advance of any processing of the state (*e.g.*, compression or transmission) that could result in a modification of the contents of the state. As a consequence, the **first identifier** truly **reflects** the version of the **state stored** in the **first endpoint**. The second identifier, however, is calculated by the second endpoint based on the state version this endpoint has received. As a consequence, the **second identifier** truly **reflects** the version of the **state** received by the **second endpoint**. If the two identifiers match it implies that both endpoints have access to the same state data. The second endpoint now knows that it can use its version of the state for message processing. In addition, the first endpoint is informed of the successful reception of the

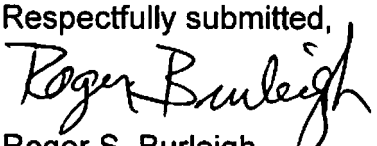
correct state upon reception of the acknowledge identifier, which in turn has been transmitted by the second endpoint in response to a correspondence between the identifiers.

For the foregoing reasons, claim 27 is not anticipated by RFC 3321. Whereas independent claims 39 and 49 recite analogous limitations, they are also not anticipated by RFC 3321. Furthermore, whereas claims 28-38, 40-48 and 50-53 are dependent from claims 27, 39 and 49, respectively, and include the limitations thereof, they are also not anticipated by that reference.

CONCLUSION

Claims 27-53 are patentable over the prior art of record, and the Applicants request that the rejections thereof be reversed and the application be remanded for further prosecution.

Respectfully submitted,



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CLAIMS APPENDIX

1-26. (Cancelled)

27. (Previously Presented) A data signaling method for message-based communication between a first communications unit and a second communications unit, said method comprising the steps of:

initiating said message-based inter-unit communication by providing, in said first communications unit, a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said first communications unit and said second communications unit;

generating a copy of said state;

transmitting said state copy and a first identifier of said state copy from said first communications unit to said second communications unit;

generating a second identifier based on said received state copy;

comparing said received first identifier and said generated second identifier;

storing said state copy in said second communications unit; and

processing, if said second identifier corresponds to said first identifier, a communications message of said multiple communications messages using said state or said state copy by modulating a size of said communications message based on at least a portion of said communications unit-associated data.

28. (Previously Presented) The method according to claim 27, wherein said processing step comprises the steps of:

said first communications unit removing at least a portion of said communications unit-associated data in said state from said communications message to obtain a reduced-size communications message; and

said first communications unit transmitting said reduced-size communications message to said second communications unit.

29. (Previously Presented) The method according to claim 28, further comprising the step of said second communications unit adding at least a portion of said

communications unit-associated data in said state copy to said reduced-size communications message to obtain said communications message.

30. (Previously Presented) The method according to claim 27, wherein said processing step comprises the steps of:

said second communications unit removing at least a portion of said communications unit-associated data in said state copy from said communications message to obtain a reduced-size communications message; and

said second communications unit transmitting said reduced-size communications message to said first communications unit.

31. (Previously Presented) The method according to claim 30, further comprising the step of said first communications unit adding at least a portion of said communications unit-associated data in said state to said reduced-size communications message to obtain said communications message.

32. (Previously Presented) The method according to claim 27, wherein said storing step comprises the step of storing said state copy in a compartment dedicated to said first communications unit at said second communications unit if said second identifier corresponds to said first identifier.

33. (Previously Presented) The method according to claim 32, further comprising the step of copying said state copy from said compartment dedicated to said first communications unit at said second communications unit to a locally available state memory at said second communications unit.

34. (Previously Presented) The method according to claim 27, further comprising the step of storing said state in a locally available state memory at said first communications unit.

35. (Previously Presented) The method according to claim 27, wherein said inter-unit communication comprises compressed message-based communication between said first and second communications unit, said method comprising the step of said first communications unit compressing said communications message based on said state, and said processing step comprises the step of said second communications unit decompressing said compressed communications message based on said state copy.

36. (Previously Presented) The method according to claim 27, wherein said inter-unit communication comprises compressed message-based communication between said first and second communications unit, said method comprising the step of said second communications unit compressing said communications message based on said state copy, and said processing step comprises the step of said first communications unit decompressing said compressed communications message based on said state.

37. (Previously Presented) The method according to claim 35, wherein said multiple communications messages are compressed using a SigComp compression.

38. (Previously Presented) The method according to claim 27, further comprising the steps of:

said second communications unit receiving an acknowledge identifier from said first communication unit; and

said second communications unit returning said acknowledge identifier to said first communications unit if said second identifier corresponds to said first identifier.

39. (Previously Presented) A communications unit adapted for message-based communication with an external communication unit, said communications unit comprising:

means for receiving a copy of a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said communications unit and said external communications unit;

means for receiving a first identifier of said state copy;

means for generating a second identifier based on said received state copy;

means for comparing said received first identifier and said generated second identifier;

means for storing said state copy; and

means, responsive to said comparing means, for processing a communications message of said multiple communications messages using said stored state copy if said second identifier corresponds to said first identifier, said processing means being configured for modulating a size of said communications message based on at least a portion of said communications unit-associated data in said state copy.

40. (Previously Presented) The communications unit according to claim 39, wherein said communications message is a reduced-size communications message and processing means comprises means for adding at least a portion of said communications unit-associated data in said state copy to said reduced-size communications message.

41. (Previously Presented) The communications unit according to claim 40, further comprising a compressor and decompressor, said adding means being provided in said decompressor for decompressing a received compressed communications message from said external communications unit by adding said at least a portion of said communications unit-associated data in said state copy to said compressed communications message.

42. (Previously Presented) The communications unit according to claim 39, wherein said processing means comprises means for removing at least a portion of said communications unit-associated data in said state copy from said communications message.

43. (Previously Presented) The communications unit according to claim 42, further comprising a compressor and decompressor, said removing means being provided in said compressor for compressing a communications message intended to said external communications unit by removing said at least a portion of said communications unit-associated data in said state copy from said communications message.

44. (Previously Presented) The communications unit according to claim 41, wherein said compressor and decompressor are configured for signal compression and decompression using a SigComp protocol.

45. (Previously Presented) The communications unit according to claim 39, wherein said comparing means is configured for generating a storing command if said second identifier corresponds to said first identifier and said storing means is configured for storing said state copy upon reception of said storing command.

46. (Previously Presented) The communications unit according to claim 39, wherein said storing means is configured for storing said state copy in a compartment dedicated to said external communications unit.

47. (Previously Presented) The communications unit according to claim 46, further means for copying said state copy from said compartment dedicated to said external communications unit to a locally available state memory.

48. (Previously Presented) The communications unit according to claim 39, further comprising means, responsive to said comparing means, for transmitting an acknowledge identifier to said external communications unit if said second identifier corresponds to said first identifier.

49. (Previously Presented) A communications unit adapted for message-based communication with an external communication unit, said communications unit comprising:

means for generating a state comprising communications unit-associated data common to multiple communications messages to be transmitted between said communications unit and said external communications unit;

means for storing said state;

means for generating a copy of said state;

means for providing said state copy for storage in said external communications unit and for providing a first identifier of said state copy to said external communications unit;

means for receiving an acknowledge identifier from said external communications, said acknowledge identifier being transmitted in response to a correspondence between said first identifier and a second identifier, said second identifier being generated by said external communications unit based on said state copy; and

means, responsive to said receiving means, for processing a communications message of said multiple communications messages using said stored state if said second identifier corresponds to said first identifier as determined by reception of said acknowledge identifier, said processing means being configured for modulating a size of said communications message based on at least a portion of said communications unit-associated data in said state.

50. (Previously Presented) The communications unit according to claim 49, wherein said processing means comprises means for removing at least a portion of said communications unit-associated data in said state from said communications message.

51. (Previously Presented) The communications unit according to claim 50, further comprising a compressor and decompressor, said removing means being provided in said compressor for compressing a communications message intended to said external communications unit by removing said at least a portion of said communications unit-associated data in said state from said communications message.

52. (Previously Presented) The communications unit according to claim 49, wherein said communications message is a reduced-size communications message and said processing means comprises means for adding at least a portion of said communications unit-associated data in said state to said reduced-size communications message.

53. (Previously Presented) The communications unit according to claim 52, further comprising a compressor and decompressor, said adding means being provided in said decompressor for decompressing a received compressed communications message from said external communications unit by adding said at least a portion of said communications unit-associated data in said state to said compressed communications message.

* * *

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.